

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 September 2011 (09.09.2011)

(10) International Publication Number
WO 2011/107888 A1

(51) International Patent Classification:
A63F 3/04 (2006.01) A63F 13/10 (2006.01)
A63F 13/06 (2006.01)

(21) International Application Number:
PCT/IB2011/000884

(22) International Filing Date:
24 April 2011 (24.04.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2010300801 25 February 2010 (25.02.2010) AU

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,

KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- with information concerning request for restoration of the right of priority in respect of one or more priority claims; the decision of the receiving Office regarding the

[Continued on next page]

(54) Title: BOARD GAME APPARATUS

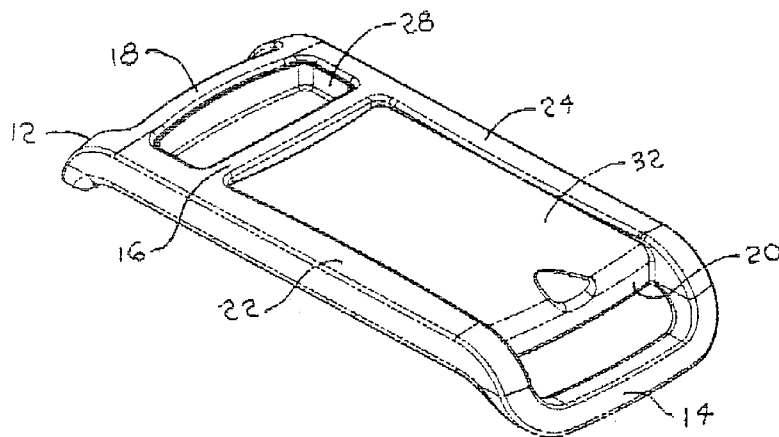


Fig. 2

(57) Abstract: The present invention provides a board game apparatus comprising a board game base; an active layer disposed on the board game base, the active layer including a plurality of graticules configured to detect at least one of a radio-frequency identification antenna, a magnetic particle, and a programmable memory chip; and an activity game board configured to generally overlay the active layer.



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BOARD GAME APPARATUS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present Application is related to Provisional Patent Application entitled "A Board Game Apparatus" filed 25 February 2010 and assigned filing number 2010-300801, assigned to Prompt Management Pty Ltd., incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of educational toys. More specifically, the invention relates to a portable, interactive and immersive educational toy which employs matching of shapes or forms and is suitable for children and teenagers for playing and/or learning, and children with visual, and/or auditory, and/or developmental disabilities.

BACKGROUND OF THE INVENTION

[0003] Conventionally, most children have used or are familiar with a toy comprising a board having multiple geometric holes or recesses which is used by inserting corresponding mating male forms with matching geometric shapes into the respective recesses. The geometric shapes can be circular, square, triangular, hexagonal, and the like. These toys help children to become aware of the shapes by inserting the male forms into the correct respective recesses.

[0004] As example of the known art, reference is made to U.S. Patent No. 4,609,356 wherein an education kit has been disclosed. The education kit has pieces of toy or other pattern, a tray board and plurality of templates or representation. A magnet is placed in the base of the board assembly which closes a switch. A timing signal and audio signal indicating to the child that he or she has made a correct placement are also provided. A board pattern that can be reprogrammed for different representations is also provided.

[0005] Again, in U.S. Patent No. 4,952,153, a surface magnetic toy is disclosed. The magnetic toy has a magnetic base to temporarily attach the surface board. The surface board has plurality of metallic perforation for the reception of the

corresponding shape of magnetic toy piece. The perforated places on surface board are color-coded to teach color recognition.

[0006] Similarly, in U.S. Patent No. 4,403,965, an electronic teaching apparatus is disclosed. The electronic teaching apparatus has pictorial representation on a game board. Some flexible overlays are arranged or assemble on the board, which gives speech recognition for each pictorial representation. It is assembled in portable case for portability of the gaming apparatus. It is enabled with an integrated circuit for speech recognition and for identifying the proper sequence of the words by audio means.

[0007] U.S. Patent No. 4,348,191 disclosed an electronic game board apparatus having a game board base, an activity game board and game pieces or blocks. The activity game board has different areas which recognize a different environment. When a game piece is emplaced at an appropriate location on the activity game board, the game board apparatus will emit realistic sounds similar to the environment. An electronic circuit is disposed within the game board, the circuitry responding to each movement of the game piece by triggering to similar sound effect. A built-in chip can be programmed to configure different sound as per the environment embedded on the board.

[0008] While the above apparatuses have been used for many years in various arrangements, most of them suffered from a number of drawbacks. First, these toys do not generate much attention from the children, possessing very low interest in puzzles or challenges which involve the use of spatial abilities. Second, even an interested child can get tired of the same activity because a particular activity can be easily learned and mastered.

[0009] In light of the above discussion, there is a need of an invention which overcomes the above stated shortcomings and provides a game device which retains the attention of a child for longer periods of time.

BRIEF SUMMARY OF THE INVENTION

[0010] The present invention is directed to a board game apparatus. The board game apparatus includes a board game base, various activity game boards, and multiple game pieces which can be positioned on the board game base in a variety of different positions. The game piece may include a programmable memory chip which encompasses the characteristics and related movements or actions of the game piece when it comes into range of the board game base and its corresponding activity game board. The board game base includes multiple predefined positions on the board. Each of the predefined positions has one or more attributes which are matched with one or more attributes of one or more multiple game pieces.

[0011] The board game apparatus further includes a feedback facility for providing a sensible indication when one or more game piece is positioned on the activity game board supported on the board game base. In an exemplary embodiment of the present invention, the feedback facility is configured to provide a unique sensible indication, or an indication of a mismatch, of the attribute of the game piece with the position of the game piece on the activity game board.

[0012] In an embodiment of the present invention, component electronics commence interaction with each game piece using programmed commands stored in the board game base to respond to the placement of each of the game pieces on the activity game board.

[0013] These and other systems, methods, objects, features, and advantages of the present invention will be apparent to those skilled in the art from the following detailed description of the preferred embodiment and the drawings. All documents mentioned herein are hereby incorporated in their entirety by reference.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The systems and methods described herein may be understood by reference to the following figures:

[0015] FIG. 1 illustrates a board game base with an active layer, in accordance with the present invention;

[0016] FIG. 2 is an isometric diagrammatical view of the board game base of FIG. 1;

- [0017] FIG. 3 is a cross sectional view of the board game base of FIG. 2;
- [0018] FIG. 4 is a cross sectional diagrammatical view of a board game apparatus in accordance with an aspect of the present invention, showing a game piece on an activity game board, the activity game board emplaced on the active layer of the board game base of FIG. 1;
- [0019] FIG. 5 is a diagrammatical rendering of a plurality of game pieces placed on an activity game board, in accordance with the present invention;
- [0020] FIG. 6 is a diagrammatical rendering of the game pieces of FIG. 5 shown in different positions on the activity game board;
- [0021] FIG. 7 is a detailed diagrammatical plan view of an active layer containing an array of graticules, in accordance with an aspect of the present invention;
- [0022] FIG. 8 is a detailed diagrammatical view of an individual graticule of FIG. 7;
- [0023] FIG. 9 is a diagrammatical view of an activity game board placed on the active layer of FIG. 7;
- [0024] FIG. 10 is a flow diagram illustrating operation of a game played using the board game apparatus of FIG. 4;
- [0025] FIG. 11 is a diagrammatical view of a game piece for use with the board game base of FIG. 1;
- [0026] FIG. 12 is a diagrammatical view of two different game pieces placed on an activity game board supported by the board game base of FIG. 1;
- [0027] FIG. 13 is a diagrammatical plan view of an exemplary embodiment of an activity game board;
- [0028] FIG. 14 is a diagrammatical view of the activity game board of FIG. 13, showing a light being activated under a game piece correctly placed on the activity game board;
- [0029] FIG. 15 is a diagrammatical plan view of an activity game board having a jungle theme;

[0030] FIG. 16 is an isometric view of a set of animal game pieces adapted for use with the activity game board of FIG. 15;

[0031] FIG. 17 is a diagrammatical plan view of an activity game board having a pirate theme;

[0032] FIG. 18 is an isometric view of a set of game pieces adapted for use with the activity game board of FIG. 17;

[0033] FIG. 19 is an isometric diagrammatical view of the board game base of FIG. 1 as may be adapted for use with an external monitor;

[0034] FIG. 20 is a cross sectional diagrammatical view of an alternative embodiment of a board game apparatus of the present invention, showing an interactive game board disposed on the active layer of the board game base;

[0035] FIG. 21 is a cross sectional diagrammatical view of another alternative embodiment of a board game apparatus of the present invention, showing a touch sensitive surface disposed on an activity game board;

[0036] FIG. 22 is a cross sectional diagrammatical view of yet another alternative embodiment of a board game apparatus of the present invention, showing an active layer comprising a processor, a battery, and a speaker; and

[0037] FIG. 23 is a cross sectional diagrammatical view of still another alternative embodiment of a board game apparatus of the present invention, showing an inactive activity game board with a felt base layer.

[0038] While the above-identified figures set forth preferred embodiments of the invention, other embodiments are also contemplated, as noted in the discussion. In all cases, this disclosure presents the present invention by way of representation and not limitation. It should be understood that numerous other modifications and embodiments can be devised by those skilled in the art which fall within the scope and spirit of the principles of this invention.

DETAILED DESCRIPTION OF THE INVENTION

[0039] It should be understood that the system components described herein have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the present invention so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

[0040] In this document, relational terms such as 'first' and 'second,' and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions. The terms 'comprises', 'comprising', or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. An element preceded by "comprises... a" does not, without more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises the element.

[0041] Referring now to Figures 1 - 3, there is shown a board game base **10**, generally rectangular in shape and comprising a game platform **20**, with a front rail **22**, a back rail **24**, and a divider **16** generally enclosing the game platform **20**. The board game base **10** further includes an end rail **18** disposed so as to define a storage recess **28** in the board game base **10** adjacent the game platform **20**. A storage lid **38** may be provided to cover the opening of the storage recess **28** to prevent the contents of the storage recess **28** from falling out when the board game base **10** is transported. The board game base **10** includes a left support **12** extending from the game platform and a right support **14** extending from end rail **18** so as to keep the game platform **20** raised from an underlying supporting surface.

[0042] The surfaces of the front rail **22**, the back rail **24**, and the divider **16** are generally raised from a platform surface **32** to form a shallow trough. An active layer **30** may be secured on the platform surface **32** to enable game play, in accordance with an aspect of the present invention.

[0043] As shown in the simplified cross sectional diagram of Figure 4, a board game apparatus 50 includes one or more game pieces 52 used with the game platform 20. The game platform 20 includes a card slot 34 in the divider 16 configured to retain an activity game board 36 placed on the active layer 30 and to electronically couple the activity game board 36 to a central processing unit (CPU) 40. During game play, the game pieces 52 may be moved, as indicated by the arrows, along a gaming surface 38, that is, the top surface of the activity game board 36. The active layer 30 functions in conjunction with the CPU 40 provided in the game platform 20.

[0044] The CPU 40 is in electrical communication with an activity game board detector 42, which serves to detect the insertion of the activity game board 36 and, once inserted, to identify the particular activity game board 36. The game platform 20 includes a power source 44, such as a rechargeable battery, for powering the CPU 40 and the card detector 42. A sound generating device 46, such as an audio speaker, may be provided to produce audible sounds produced by the CPU 40. An external port 48 may also be provided to enable the CPU 40 to communicate with external electronics, such as a monitor, shown in Figure 19, below. The CPU 40, the activity game board detector 42, the active layer 30, and the sound generating device 46 work in conjunction with each other to make interactive the game associated with the particular activity game board 36 selected by the child or the parent.

[0045] As shown in Figure 5, game pieces 54, 56, and 58 have been placed on the playing surface of an activity game board 60. It should be understood that the game pieces 54, 56, and 58 are shown having cubic shapes for clarity of illustration and that, in general, a game piece suitable for use with the board game base 10 may comprise any shape envisioned by a game designer. In the illustration, the first game piece 54 has been moved along the activity game board 60 to a first desired location, and has caused a first light 62 to emanate from the active game surface 30, as described in greater detail below. In Figure 6, the second game piece 56 has been moved along the activity game board 60 to a second location which results in a second light 64 emanating from the active game surface 30, and the third game piece 58 has been moved along the activity game board 36 to a third location producing a third light 66 emanating from the active game surface 30.

[0046] In an exemplary embodiment of the present invention, the game pieces 52, 54, and 56 can interact with the active layer 30 using a magnetic or conductive or RFID contact which creates electronic connections among the game pieces 52, 54, and 56 and the active layer 30. It may be noted that the game pieces 52, 54, and 56 can interact with the active layer 30 by using a suitable technology presently known in the art.

[0047] As shown in Figure 7, the active layer 30 includes an array of graticules 70, here shown as a substantially rectangular array, although any other geometric configuration of a plurality of graticules 70 can be used in the present invention. As shown in Figure 8, each graticule 70 includes a magnetic sensor 72, a light source 74, and an antenna 76. The magnetic sensor 72 may comprise, for example, a reed switch or a Hall-effect sensor. The light source 74 may comprise a light-emitting diode (LED), and the antenna 76 may comprise a radio-frequency identification (RFID) antenna. Each graticule 70 thus functions as a sensor to detect the presence of a game piece, as described in greater detail below.

[0048] As shown in Figure 9, the selected activity game board 36 is positioned over the active layer 30 for game play. The activity game board 36 includes a geometric pattern, a plurality of images or figures, or some other game-related illustration that includes one or more predefined locations related to game play, such as exemplified in Figures 13, 15, and 17, below. The activity game board 36 includes a dedicated graticule 80 that functions to identify the particular activity game board 36 to the activity game board detector 42. The dedicated graticule 80 may include an RFID antenna 82 and an RFID chip 84 to provide a means of electronic coupling between the activity game board 36 and the activity game board detector 42. It can be appreciated that the activity game board 36 is complimentary to the game pieces. By inserting the activity game board 36 into the divider 16, the CPU 40 responds by interacting with each game piece using programmed commands stored in memory to respond to the placement of each game piece on the activity game board 36.

[0049] For example, upon detection of the activity game board 36, the CPU 40 may function to retrieve a gaming configuration for the activity game board 36 and generate a mapping between the context of a game defined by predefined areas on the activity game board 36 and the array of graticules 70 in the active layer 30. It can be

appreciated by one skilled in the art that, when the activity game board 36 is removed and replaced with a new activity game board (not shown), the CPU 40 function to retrieve a new gaming configuration for the new activity game board and generate a new mapping between predefined areas on the new activity game board and the array of graticules 70 in the active layer 30.

[0050] Game play may be conducted in accordance with a flow diagram 90 in which a game surface is provided for game play, the game surface overlying an array of graticule sensors, such as RFID and magnetic sensors, at step 92. In an exemplary embodiment, the activity game board 36 may be placed over the active layer 30 to function as a game surface overlying a sensor array of RFID and magnetic sensors. A game piece having an embedded identifier, such as an RFID chip and/or a magnetic target, may be provided to effect game play, at step 94. The game piece 100 may be configured as shown in Figure 11.

[0051] In an exemplary embodiment, the game piece 100 may include a geometrical body 102 attached to a base 104. The base 104 may include an RFID antenna 112, a magnetic particle 116, and an optional programmable memory chip 114 functioning to provide sensor identity of the game piece 100. The programmable memory chip 114 encompasses the characteristics and related movements or actions of the game piece 100 when moving into range of any of the graticules 70 embedded in the active layer 30. The movement of the game piece 100 across the activity game board 36 may thus be sensed by an interaction of the programmable memory chip 114 embedded in the game piece 100 with a sequence of graticules 70 in the active layer 30, at step 96. As shown in Figure 12, the game piece 100 has been moved to a "correct" location on the activity game board 36, and has elicited a response from an underlying graticule 70a.

[0052] The magnetic sensor 72a in the graticule 70a has detected the presence of the game piece 100 by sensing the presence of the magnetic particle 116. Moreover, the antenna 76a has identified the game piece 100 by reading the programmable memory chip 114 via the RFID antenna 112. Game play then provides at least one of (i) a sound from the sound generating device 46, or (ii) a visual response from the light source 74, when a game piece has moved to a correct location on the activity game board, at step 98. In the particular example provided, the light source 74a has

illuminated in response to the identification of the game piece **100** at the graticule **70a**. In comparison, the placement of a game piece **120** at a graticule **70b** has elicited no response from a light source **74b**, because the game piece **120** is in an “incorrect” location on the activity game board **36**.

[0053] In an exemplary scenario, the colours of the game piece **54**, game piece **56**, and game piece **58** are red, blue, and green, respectively. Each of the game pieces **54**, **56**, and **58** can have respective predefined positions on the activity game board **36** or over the active layer **30**. If a child/infant picks the game piece **54** and tries to place the game piece **54** on its predefined position on the activity game board **36**, the activity game board **36** may beep and may also generate a lighting signal (shine). In another exemplary scenario, the child may not be able to identify the predefined position of the game piece **54** on the activity game board **36** and may try to place it on the position of the game piece **56**. In this scenario, the active layer **30** may generate a whistling sound. Similarly, if the child tries to place the game piece **56** in the predefined position of the game piece **58**, then the active layer **30** may generate a chirping noise.

[0054] In an exemplary embodiment of the present invention, the game piece **100** generates a beep noise when placed on a correct predefined position. In another embodiment of the present invention, the game piece **100** generates whistling and chirping sound when placed on a wrong predefined position. In yet another embodiment of the present invention, the game piece **100** generates a beep when placed on a correct predefined position and the active layer **30** generates chirping and whistling sound when the game piece **100** is placed on wrong predefined positions.

[0055] In an embodiment of the present invention, the activity game board **36** may have one or more predefined positions for each of the game piece **100** and the game piece **120**. In yet another embodiment of the present invention, the game piece **100** itself may have an LED (not shown). In this embodiment, the LED may light up or flash when placed on a “correct” predefined position.

[0056] It may be noted that the above stated embodiments have been explained by taking the example of game piece **54**, game piece **56**, game piece **58**, game piece **100**, and game piece **120**. However, those skilled in the art would appreciate that the

present invention can have multiple game pieces and the activity game board 36 can have one or more predefined positions for each of these game pieces. Further, in the above stated scenario, the game piece 54, the game piece 56, and the game piece 58 have functioned to generate beeps when placed in the correct predefined positions. However, those skilled in the art would appreciate that another audio signal, or any other type of signal presently known in the art, can be generated to indicate the correct placement. Similarly, apart from whistling and chirping, some other kind of audio signal can be generated to indicate the incorrect, or nearly incorrect, placements.

[0057] In all the above stated scenarios, the child will be able to identify the predefined position on the activity game board 36 of each of the game piece 54, game piece 56, and game piece 58 by comparing the attributes of the game pieces and their respective predefined positions on the activity game board 36. The attributes can be colour, shape, size, and the like. For example, the predefined position for the red game piece 54 on the activity game board 36 can be red in colour. The child may identify the “red position” on the activity game board 36 and may try to place the red game piece 54 on the red position.

[0058] In an embodiment of the present, the activity game board 36 defines each game and determines the use of the game pieces. For example, for each different game there is a different activity game board and different game pieces. In an embodiment of the present invention, the activity game board 36 sets out a game, and provides the commands for the active layer 30, pending the placement of the game pieces.

[0059] Once the activity game board 36 has been inserted, the child will try to place the game pieces at appropriate positions. Every time a game piece is placed on a correct location, the active layer 30 generates a sound or light or combination of both to indicate the correct placement. In addition, on every unsuccessful attempt (i.e., the placement of game piece at wrong position), the active layer 30 generates a sound or light or any other signal to indicate the wrong position. These signals will help the child to place the game pieces at appropriate places.

[0060] In an embodiment of the present invention, the active layer 30 also generates a scorecard (not shown) showing the number of unsuccessful attempts by

the child after the placement of each of the game piece. This scorecard will help the parents to check the performance of their child. In an embodiment of the present invention, the active layer 36 may also generate a signal or noise for continuous predefined number of unsuccessful attempts. For example, the child may not be able to place a particular game piece at a correct position in five attempts. This may signify that the child is finding it difficult to place the particular game piece. In this case, the active layer 36 may generate an alarm sound for the parents to help the child.

[0061] In an embodiment of the present invention, once all the game pieces have been placed in their respective positions, the active layer 30 may generate a unique sound which indicates that the child has completed the game. In this scenario, the parents can insert any new activity game board. In an embodiment of the present invention, when the game pieces are not in use, they can be placed in the storage recess 28. In an embodiment of the present invention, the storage recess 28 is removable. In an embodiment of the present invention, there can be different activity game boards for different games provided with the board game base 10.

[0062] As shown in Figure 13, a new activity can be started on a different activity game board 124. In this new game, the correct move may signal a sound and corresponding colour, and the wrong move may trigger a reverse colour 126 and a negative sound, as shown in Figure 14. As mentioned above, in all the above stated embodiments, the positive signals and negative signals can be generated by any of the technologies presently known in the art.

[0063] As shown in Figures 15 and 16, the board game apparatus of the present invention can be used to help a three to five-year old develop a recognition of animals and their characteristics. The child is provided with a set of animal puzzles, each containing a plurality of puzzle pieces, such as a rhino puzzle 132, a tiger puzzle 134, and a monkey puzzle 136. To begin the game, the child slides in a Sahara-designed activity game board 130. The child may be prompted by the activity game board 130 to pick up a puzzle piece component from one of the animal puzzles 132, 134, or 136, and place it on the activity game board 130 to try and assemble a complete animal character puzzle. The board may acknowledge the animal selected and the particular body part that the child has emplaced on the activity game board 130, via an audio cue.

[0064] The child is encouraged to add another puzzle piece to continue assembly of the animal character. Again, the activity game board 130 may acknowledge the animal and the second body part via an audio cue. The child is prompted to complete the animal puzzle correctly, and is rewarded through visual cues and sound effects from within the activity game board 130. If an incorrect piece is placed, the child is notified, again, through visual cues and sounds triggered within the activity game board 130. The child is prompted to place the completed animals in various sections of the activity game board 130 set aside for the particular animal. For example, the rhino 132 may be positioned by a pond, the tiger 134 may sit on a rock, and the monkey 136 may remain in the grass. The animal pieces designated for a particular game work only with the associated activity game board. The child can remove all of the play pieces, put them back in their case, and remove the activity game board 130 to slide in a new activity game board (not shown) and commence a new activity.

[0065] As shown in Figures 17 and 18, the board game apparatus of the present invention can also be used to teach the child to identify various objects and place them in the appropriate matching scene. The child may be provided with a set of pirate treasure related toys 142 - 146. The child slides in a treasure island activity game board 140. The child is then prompted to pick up one of the toys 142 - 146 and place it on the activity game board 140. The activity game board 140 acknowledges the correct placement via audio cues. The child is encouraged to add another of the toys 142 - 146 to build a three-dimensional scene on the activity game board 140. Again, the activity game board 140 acknowledges the toy and its correct placement. If a piece is incorrectly placed on the activity game board 140, the child is so notified through visual cues and sounds triggered within the activity game board 140. The set of pirate treasure related toys 142 - 146 in this game work only with the activity game board 140. The child can remove all of the play pieces, put them back in their case, and remove the activity game board 140 to in order slide in a new activity game board (not shown) to commence a new activity.

[0066] In an alternative embodiment of the present invention, shown in Figures 19 and 20, a board game base 150 can interact with other multiple board game bases in the vicinity (not shown). In this embodiment, the board game base 150 can interact with another board game base via an external port 158, or wirelessly by using an

appropriate technology presently known in the art such as Bluetooth™, Infrared, and the like. The interaction with the multiple board game bases allows the multiple players to interact on their individual board game bases. In this configuration, the board game base 150 may also be attached to a monitor 152 via an appropriate electronic cable 154. A game piece 156 can be moved about on an interactive game board 162 to function as a computer mouse, for example.

[0067] In an exemplary embodiment, the interactive game board 162 can also changes its appearance in response to game play and present a different gaming layout to the player. The interactive game board 162 thus provides a digital and dynamic apparatus, in which the physical forms of the game pieces may look different for each game. For example, a red cube game piece can create a similar response to a fluffy duck game piece created in another game, or a plastic number 'three' might suffice in another activity. In this embodiment, the intelligence of the game is in the unique physical design of the interactive game board 162, and its interaction with the programmable chips in game pieces corresponding to the particular activities supported by the interactive game board 162.

[0068] In still an embodiment of the present invention, a board game apparatus 170 may includes a touch-sensitive layer 172 overlying the activity game board 36, as shown in Figure 21. As understood in the relevant art, the board game apparatus 170 utilize surface interactive technology to enable simplified surface computing using the game pieces on "electronic paper" or an electronic platform. The touch-sensitive layer 172 may thus respond to a child's touch and change appearance, or provide a virtual button or window 174 for use in game play. Placing a game piece (not shown) on the touch-sensitive layer 172 would produce a similar effect in the touch-sensitive layer 172.

[0069] In another embodiment of the present invention, shown in Figure 22, a board game apparatus 180 may comprise an active layer 182 used with an inactive board game base 178. The active layer 182 may comprise one or more of a central processing unit 184, a power source 186, and an audio device 188, in that these components are not provided in the inactive board game base 178.

[0070] In an alternative exemplary embodiment of the present invention, shown in Figure 23, a simplified activity game board **190** may slide into any of the above described the board game bases, and provide game play with complementary static game pieces (not shown). This configuration may be used when battery power in the respective board game base has been exhausted, or when a quiet game play period is desired, without the audio responses otherwise provided by the board game base.

[0071] The simplified activity game board **190** may comprise a felt layer **192** disposed on a metal or cardboard backing **194**, and the child may use felt game pieces for creating a picture on the activity game board **190**. Other examples of a simplified activity game board **190** with complimentary game pieces include, but are not be limited to, a magnetized activity game board and magnetic game pieces for the child to create a picture on the activity game board **190**, and a printed picture activity game board with the complementary game pieces such as crayons or color pens for coloring or drawing, using the board game base **10** as a support surface.

[0072] It can be appreciated that the board game base **10** of the present invention has many advantages. Firstly, it is portable and an interactive development tool for infants, toddlers and pre-school children which bridges real world objects with virtual applications for teaching and learning. The portability of the board game base **10** makes it perfect for travel where young children require stimulation, skill development and entertainment in confined spaces and while on the move. Secondly, the board game base **10** enables young children to develop their fine motor and spatial skills as well their numeric, language and sensory skills and guide them towards computer usage without losing the important sense of touch and physical play.

[0073] Although the present invention has been described in considerable detail with reference to certain preferred versions thereof, other versions are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred versions described herein.

[0074] All features disclosed in the specification, including the claims, abstracts and drawings, and all the steps in any method or process disclosed, may be combined in any combination except a combination where at least some of such features and/or steps are mutually exclusive. Each feature disclosed in the specification, including

the claims, abstract, and drawings, can be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

CLAIMS

What is claimed is:

1. A board game apparatus comprising:
 - a board game base;
 - an active layer disposed on said board game base, said active layer including a plurality of graticules configured to detect at least one of a radio-frequency identification antenna, a magnetic particle, and a programmable memory chip; and
 - an activity game board configured to generally overlay said active layer.
2. The board game apparatus of claim 1 further including a game piece configured for use with said activity game board, said game piece comprising at least one of said radio-frequency identification antenna, said magnetic particle, and said programmable memory chip.
3. The board game apparatus of claim 1 wherein said game piece is configured as a puzzle piece component of a puzzle.
4. The board game apparatus of claim 1 wherein said board game base comprises a game platform generally enclosed by a front rail, a back rail, and a divider, said board game base further including an end rail disposed so as to define a storage recess in said board game base adjacent said game platform.
5. The board game apparatus of claim 1 wherein said board game base comprises a central processing unit, a power source for powering said central processing unit, a sound generating device powered by said power source, and a card slot for receiving

said activity game board and for electronically coupling said activity game board to said central processing unit.

6. The board game apparatus of claim 5 wherein said central processing unit functions to detect said the activity game board when inserted into said card slot and, in response, retrieves a gaming configuration for said activity game board and generates a mapping between the context of a game defined by predefined areas on said activity game board and said plurality of graticules in said active layer.

7. The board game apparatus of claim 1 wherein said graticule comprises at least one of a magnetic sensor, a light source, and an antenna.

8. The board game apparatus of claim 7 wherein said magnetic sensor comprises a reed switch or a Hall-effect sensor.

9. The board game apparatus of claim 7 wherein said antenna comprises a radio-frequency identification antenna.

10. The board game apparatus of claim 1 wherein said activity game board comprises at least one of a geometric pattern, a plurality of images or figures, or a game-related illustration that includes a predefined location related to game play.

11. The board game apparatus of claim 1 wherein said board game base further comprises an external port for enabling wireless interaction with another board game base and for enabling attachment of said board game to a monitor.

12. The board game apparatus of claim 11 further comprising a monitor coupled to said external port via an electronic cable.

13. The board game apparatus of claim 1 further comprising a touch-sensitive layer overlying said activity game board, said touch-sensitive layer functioning to respond to a touch by either changing appearance or providing a virtual button or window for use in game play.

14. The board game apparatus of claim 1 wherein said active layer further comprises at least one of a central processing unit, a power source, and an audio device.

15. The board game apparatus of claim 1 wherein said activity game board layer comprises a felt layer disposed on a metal or cardboard backing.

16. A method of playing a game, said method comprising the steps of:
providing a game surface having an embedded plurality of graticules;
providing a game piece having an embedded identifier detectable by at least one of said graticules;
tracking movement of said game piece across said game surface by sensing said embedded identifier; and
providing an audio or visual response when said game piece is moved to a predetermined location proximate one of said graticules.

17. The method of claim 16 wherein said game surface comprises an activity game board overlying an active layer, said active layer including said embedded plurality of graticules.

18. The method of claim 17 wherein said activity game board is configured for a first game, said activity game board replaceable by a second activity game board configured for a second game.

19. The method of claim 16 wherein said game piece comprises at least one of a radio-frequency identification antenna, a magnetic particle, and a programmable memory chip.

20. The method of claim 16 wherein said game surface comprises an active layer such that said game piece can function as a computer mouse by moving across said game surface.

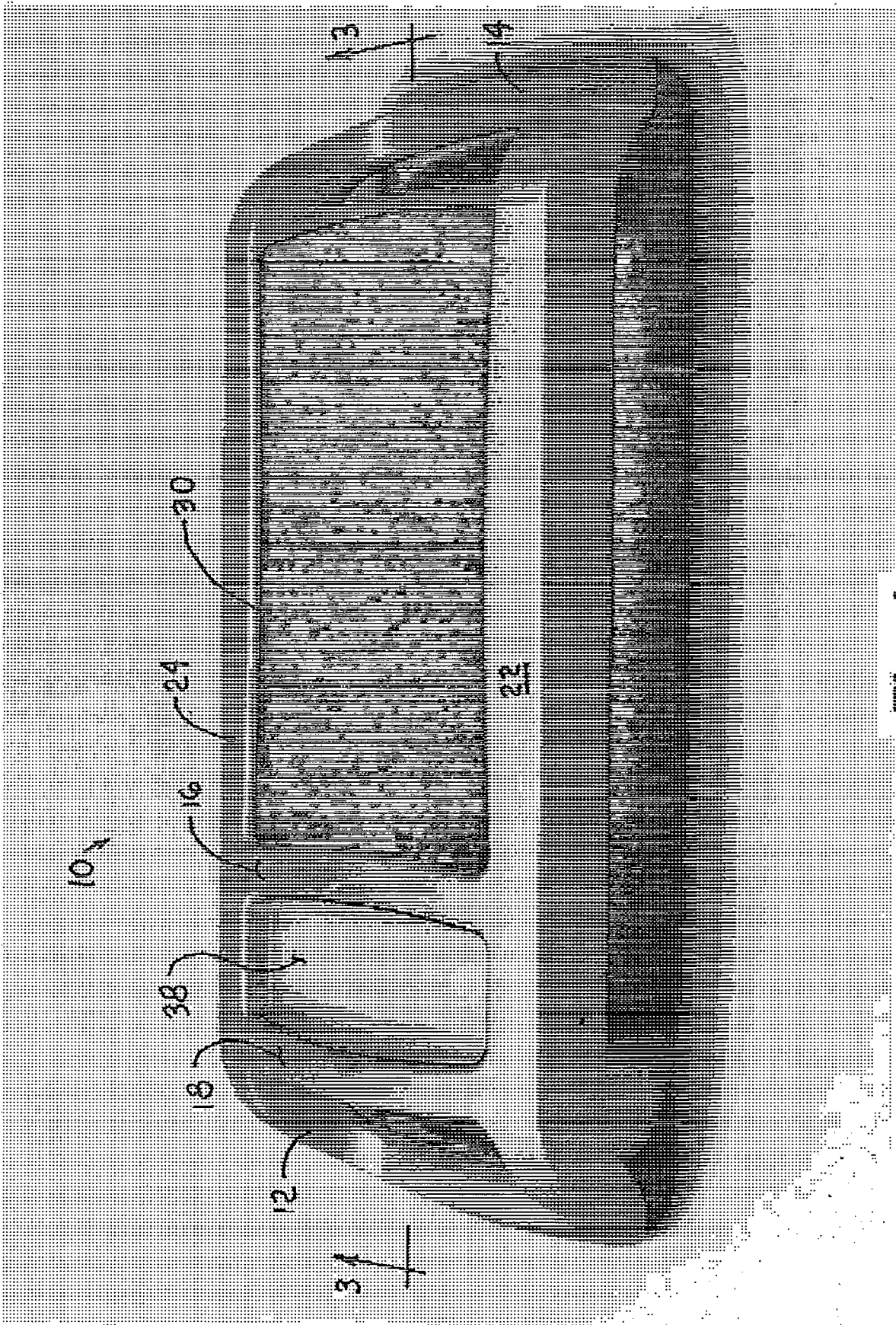


FIG. 1

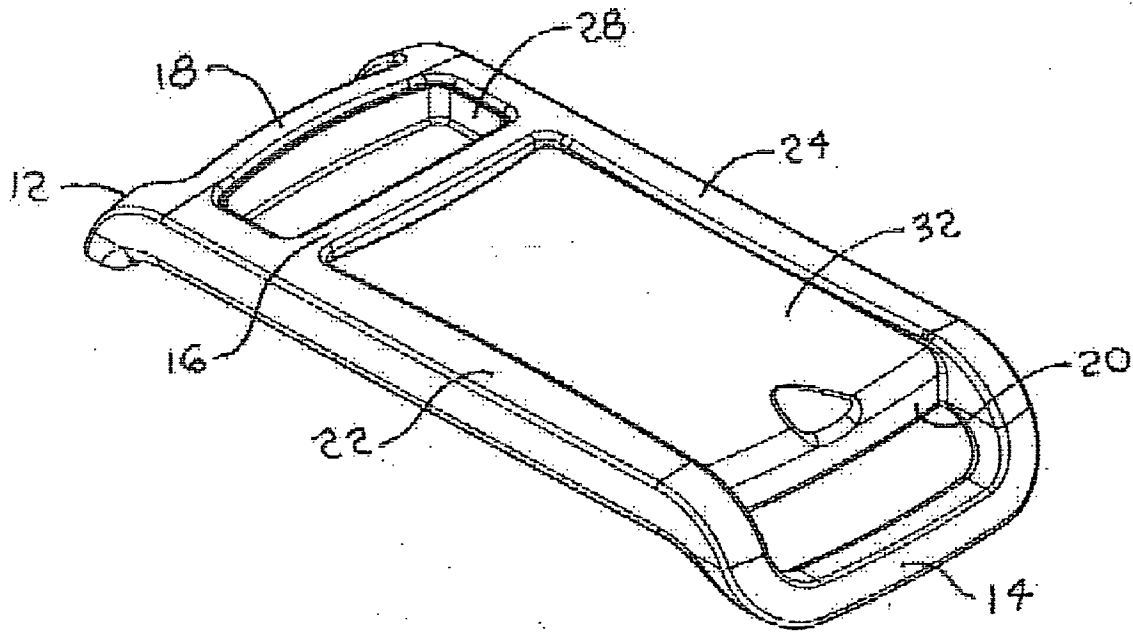


Fig. 2

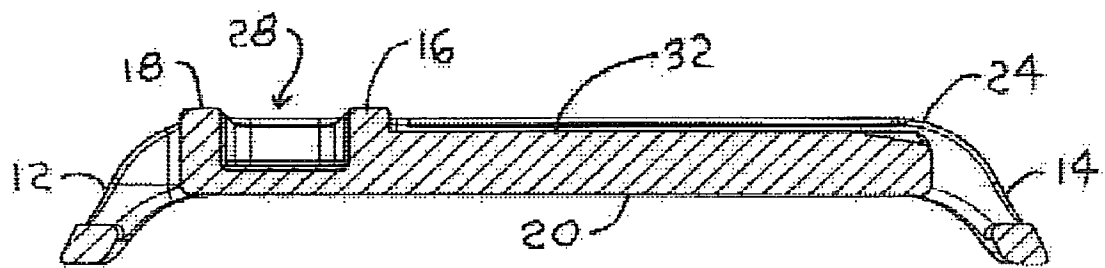


Fig. 3

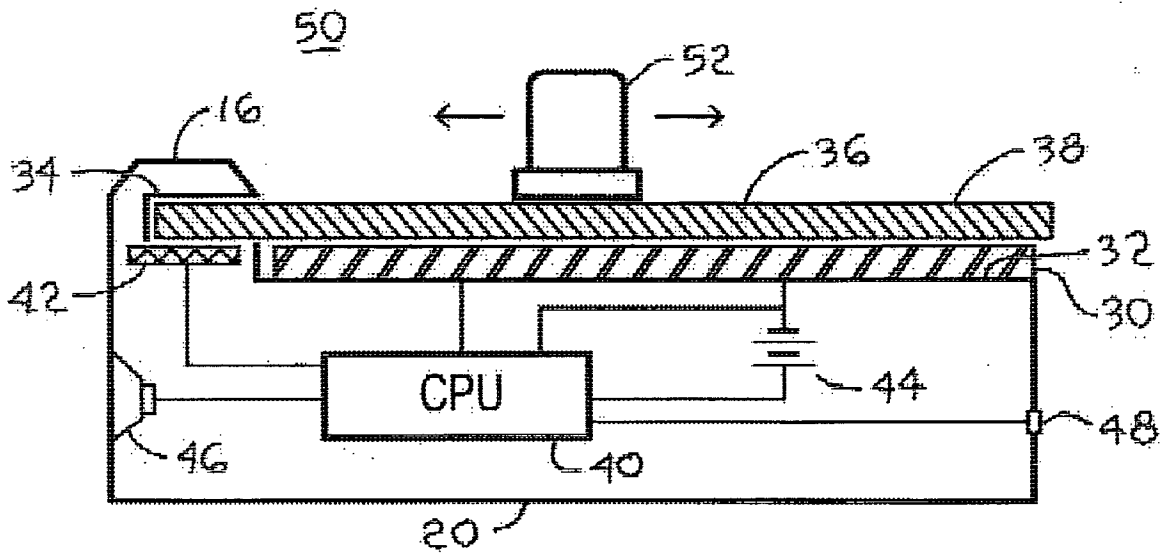


Fig. 4

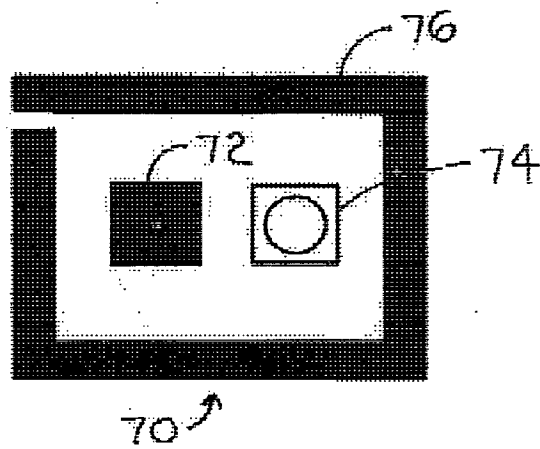


Fig. 8

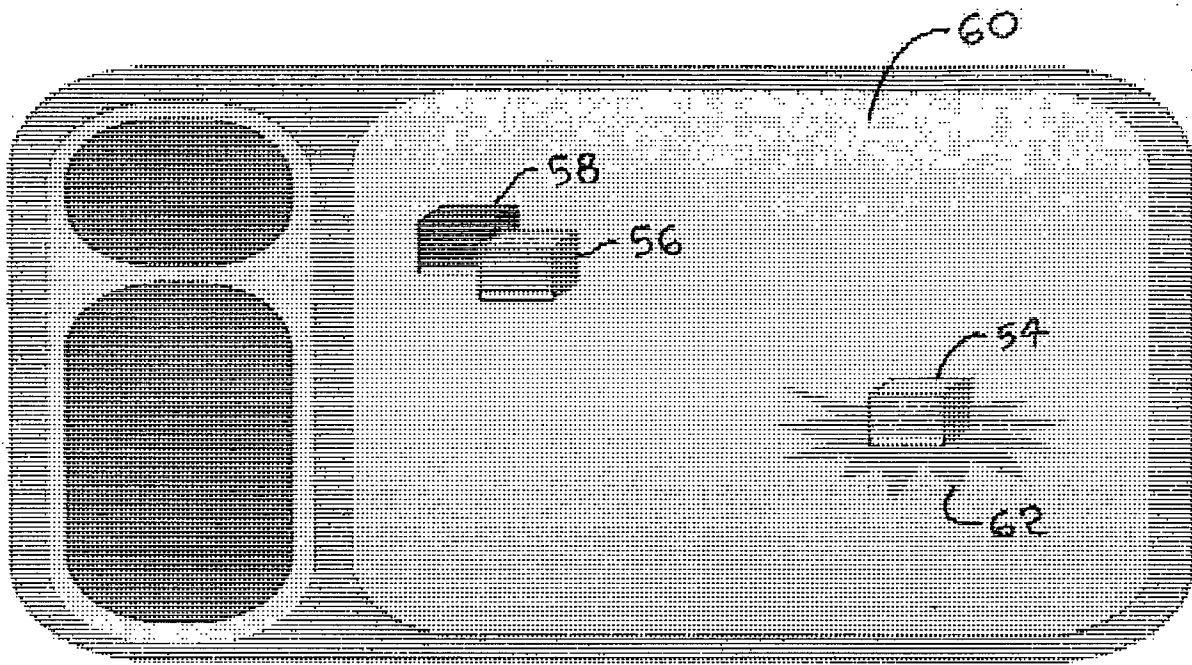


Fig. 5

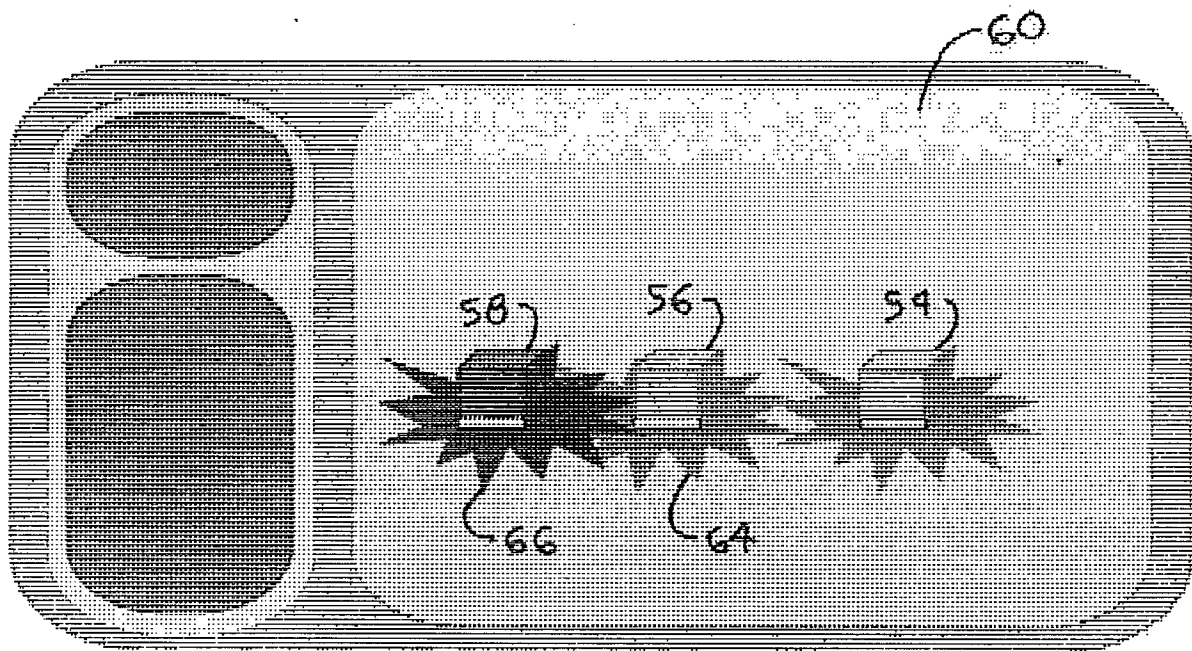


Fig. 6

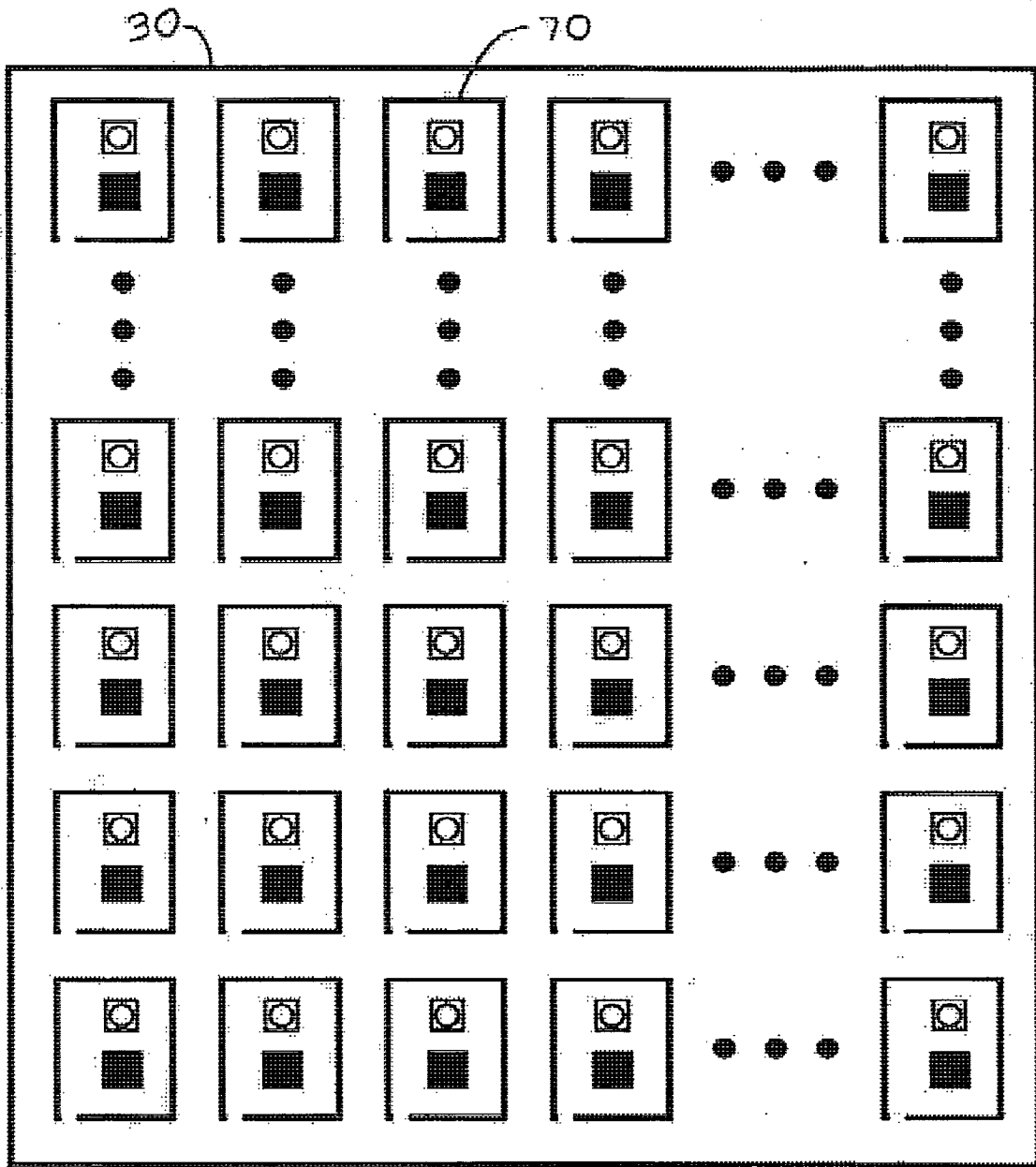


Fig. 7

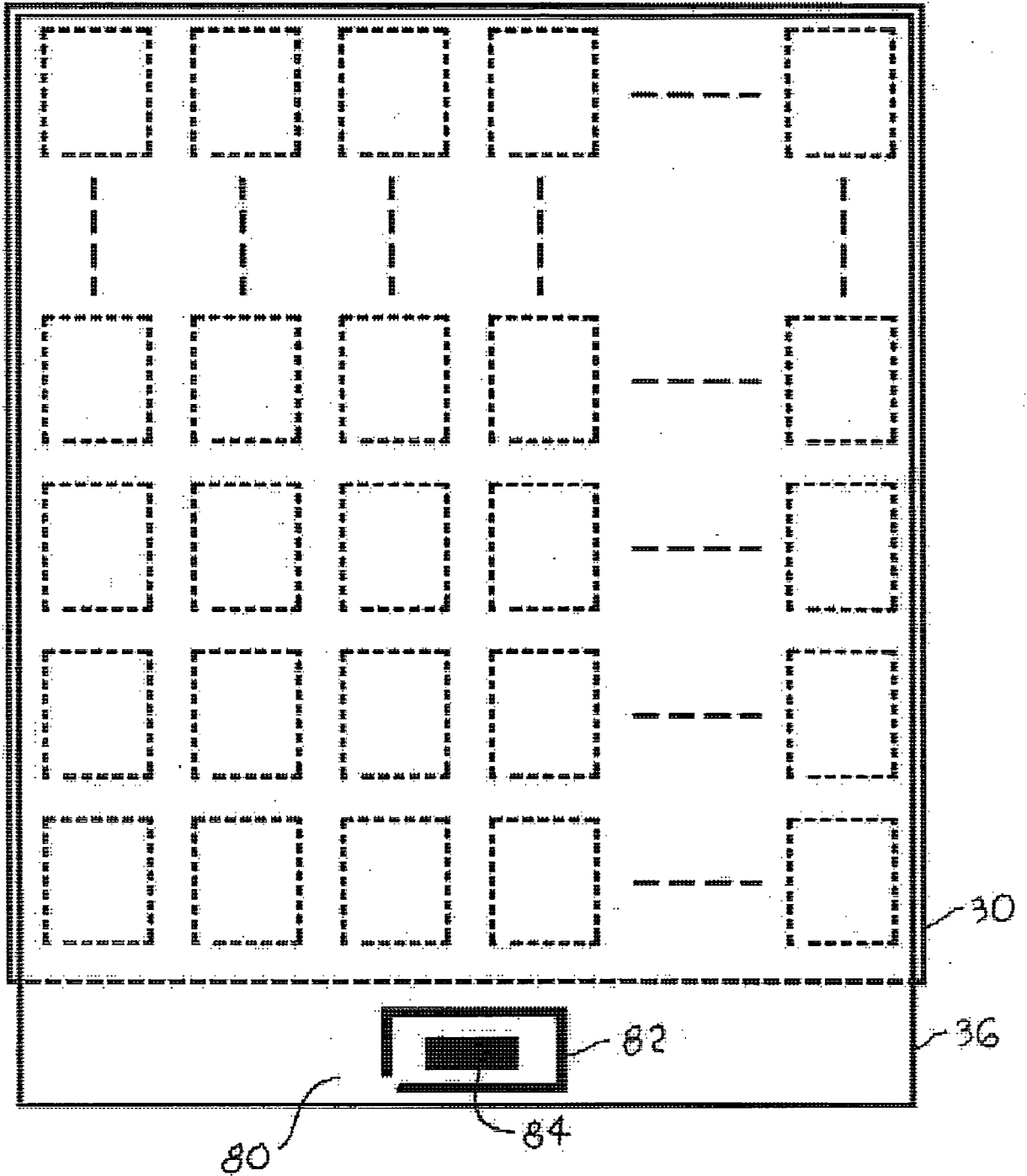


Fig. 9

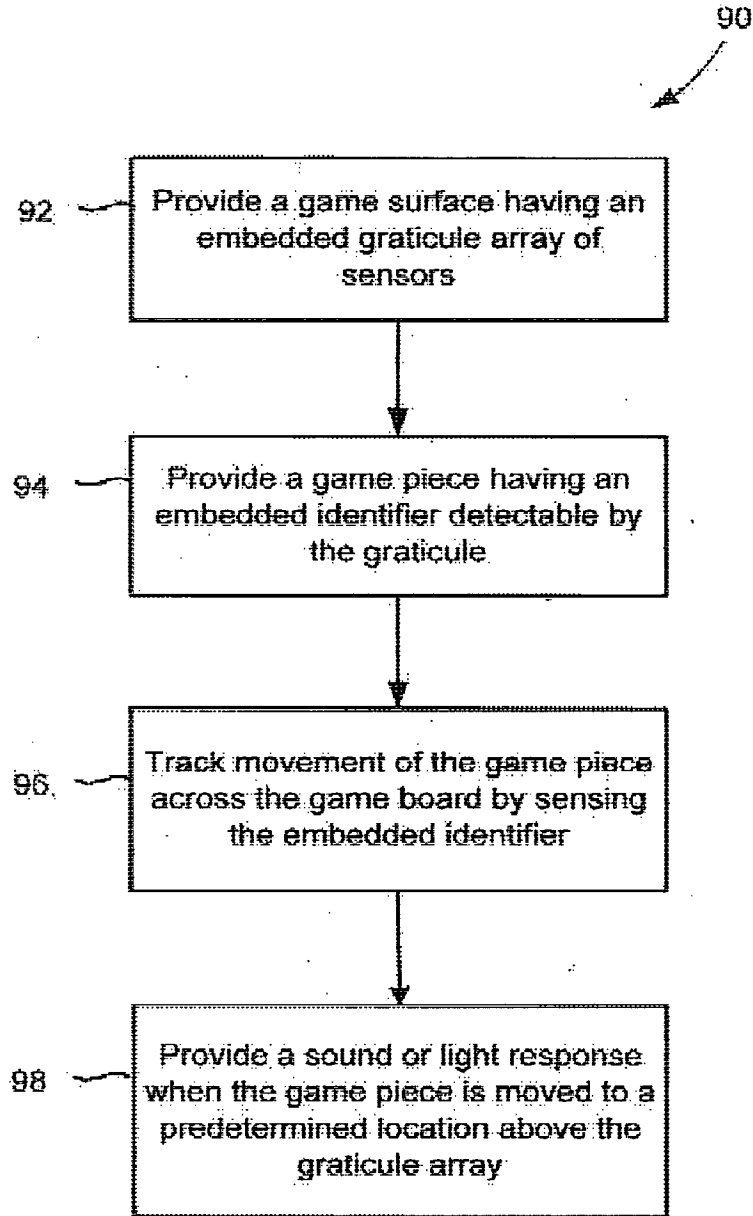


Fig. 10

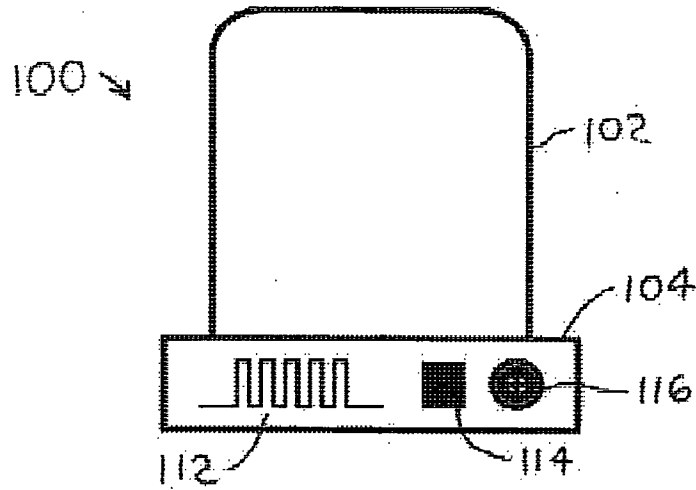


Fig. 11

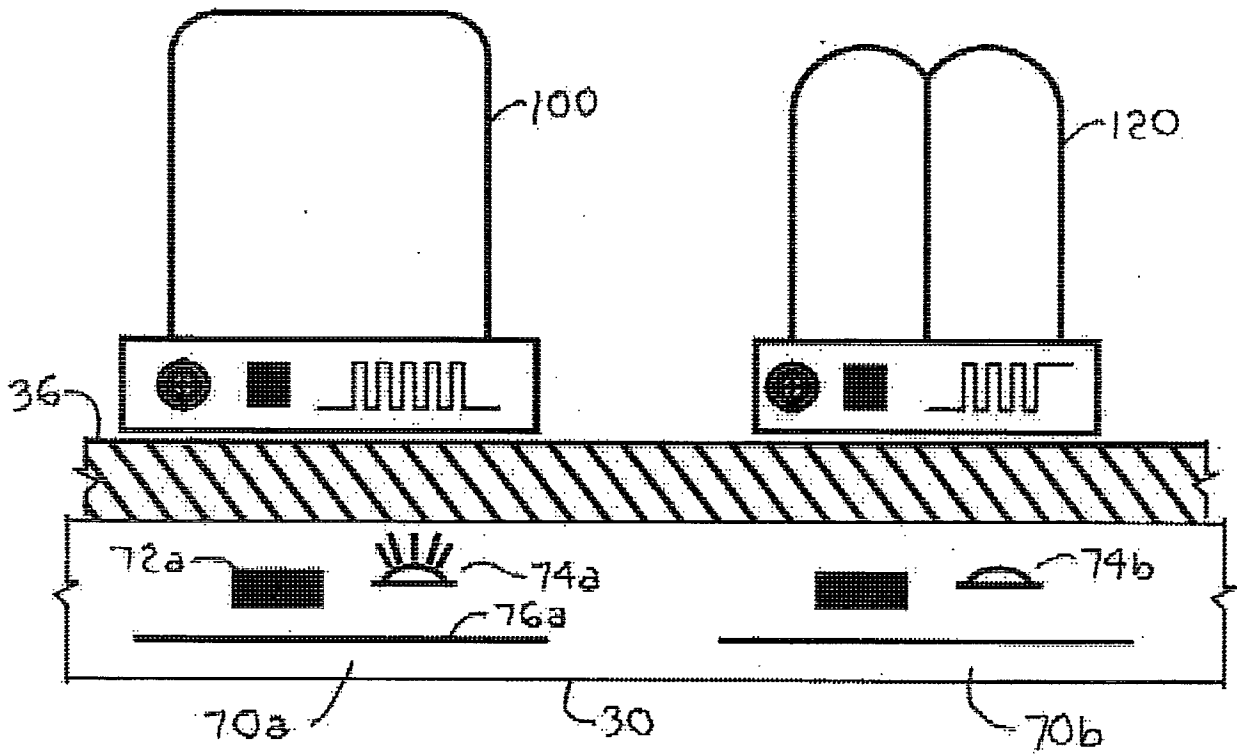
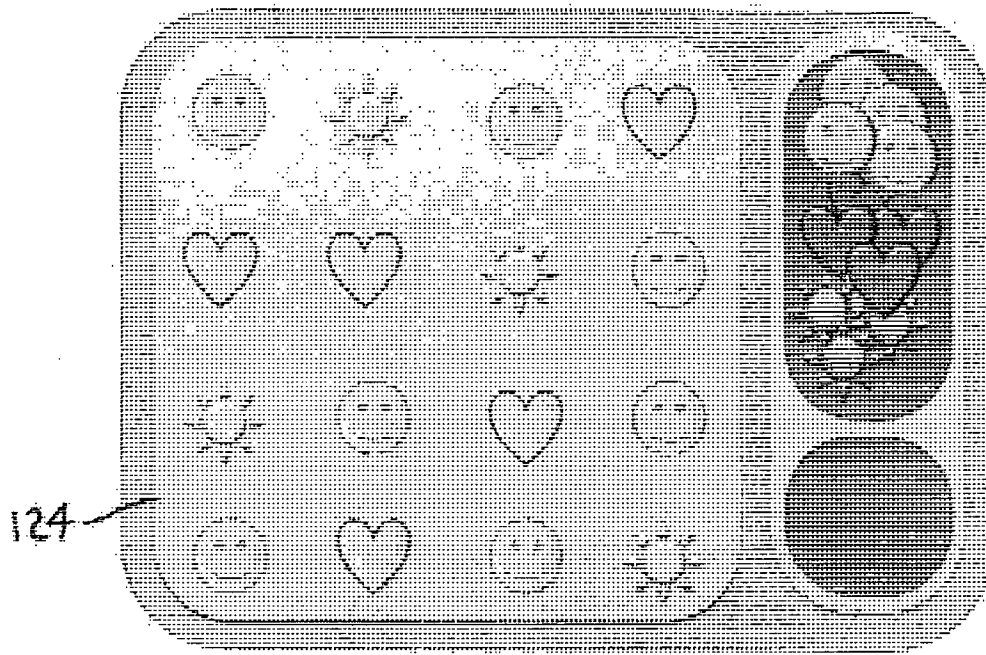
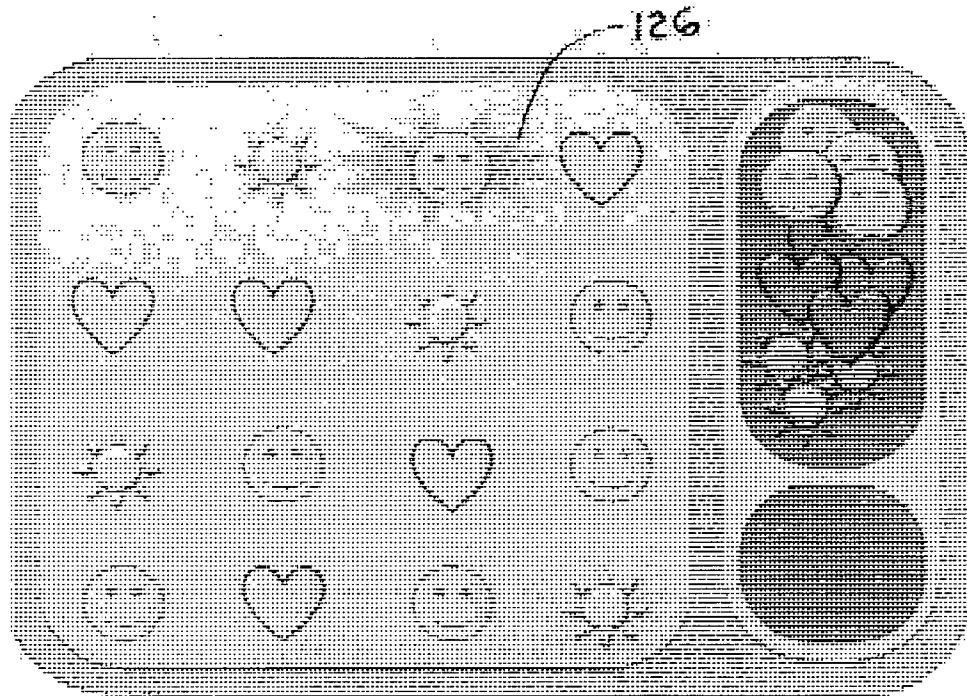


Fig. 12



124

Fig. 13



126

Fig. 14

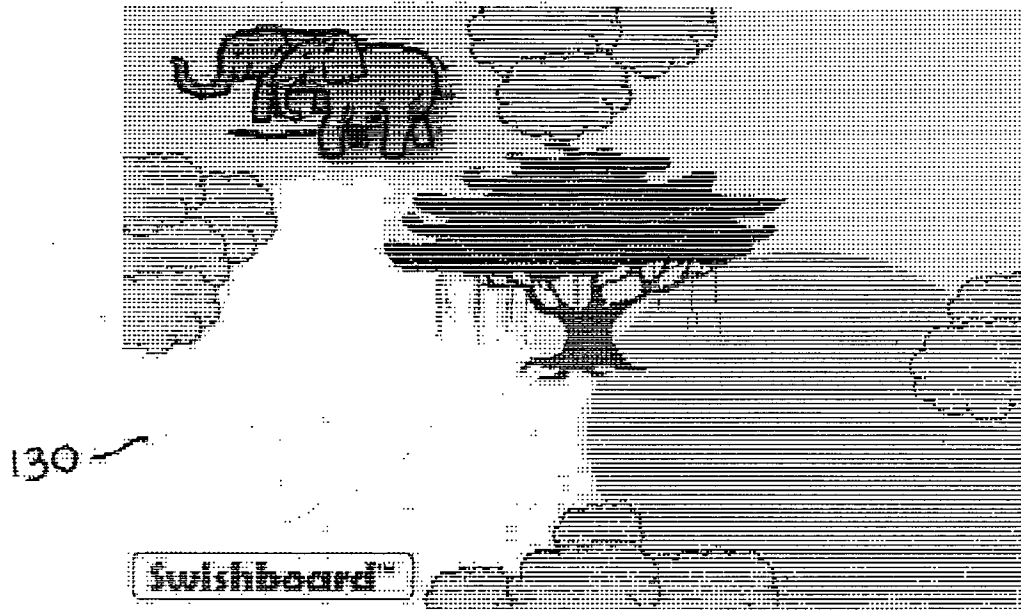


Fig. 15

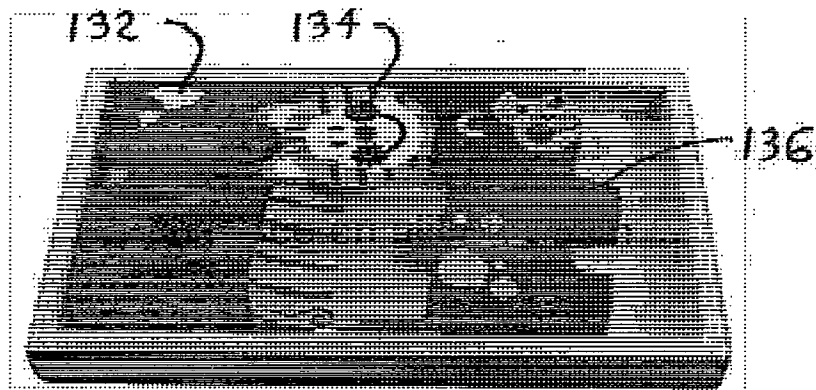


Fig. 16

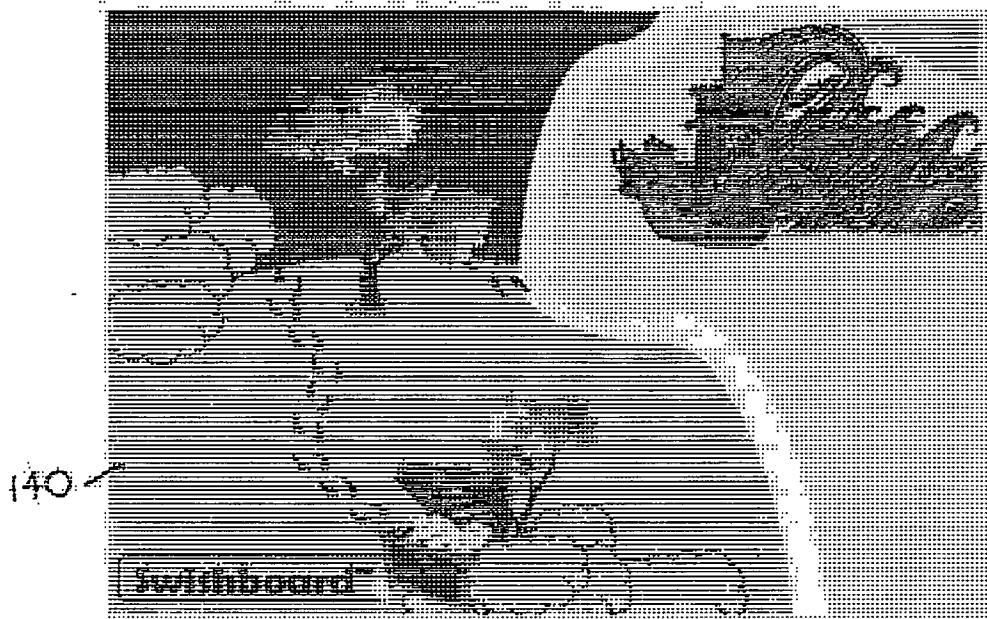


Fig. 17

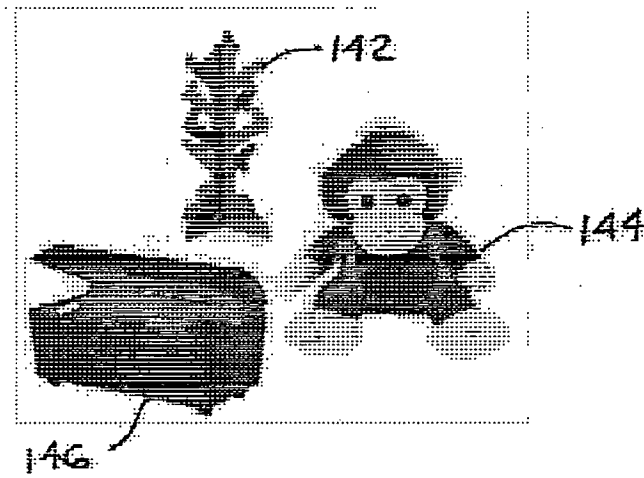


Fig. 18

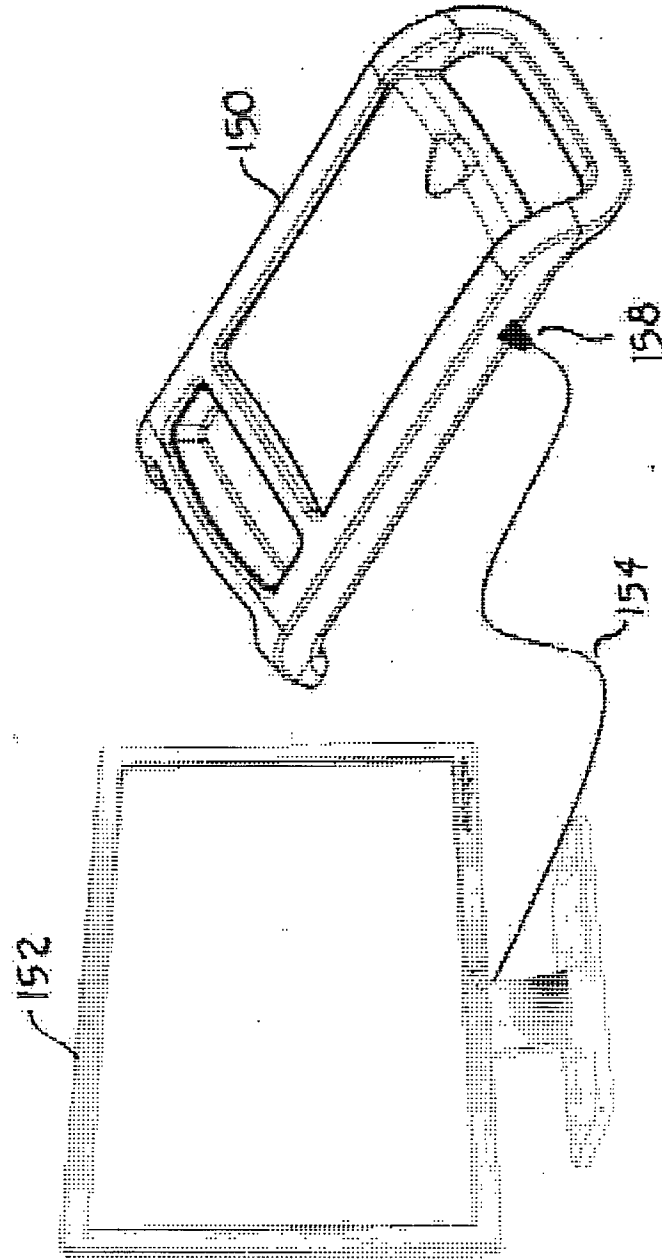


Fig. 19

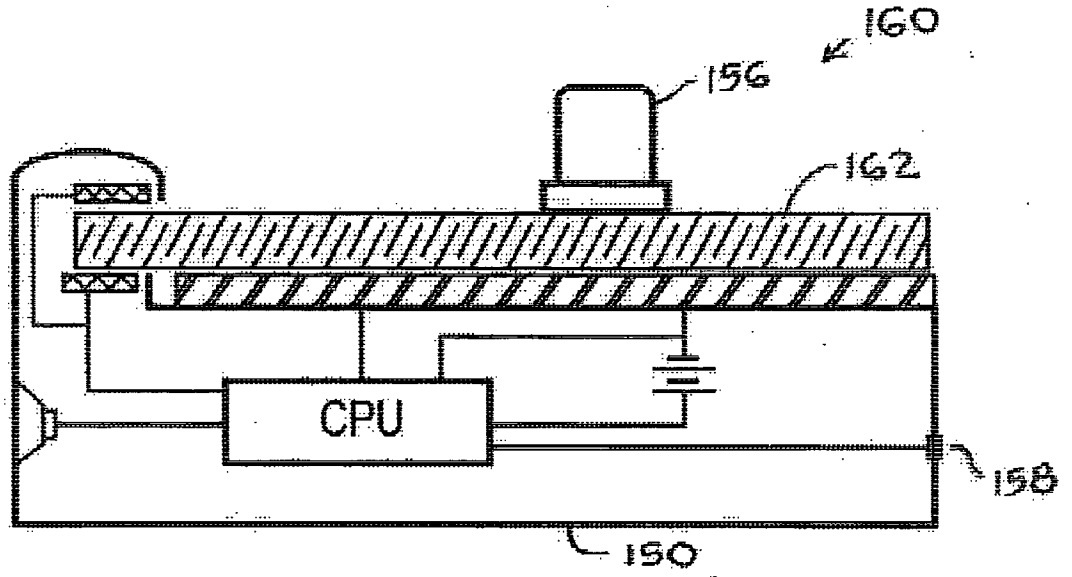


Fig. 20

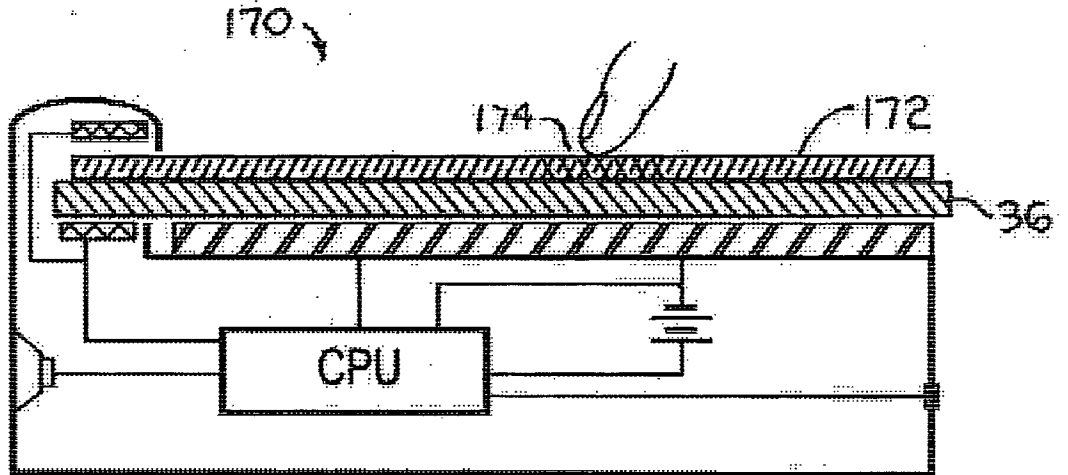


Fig. 21

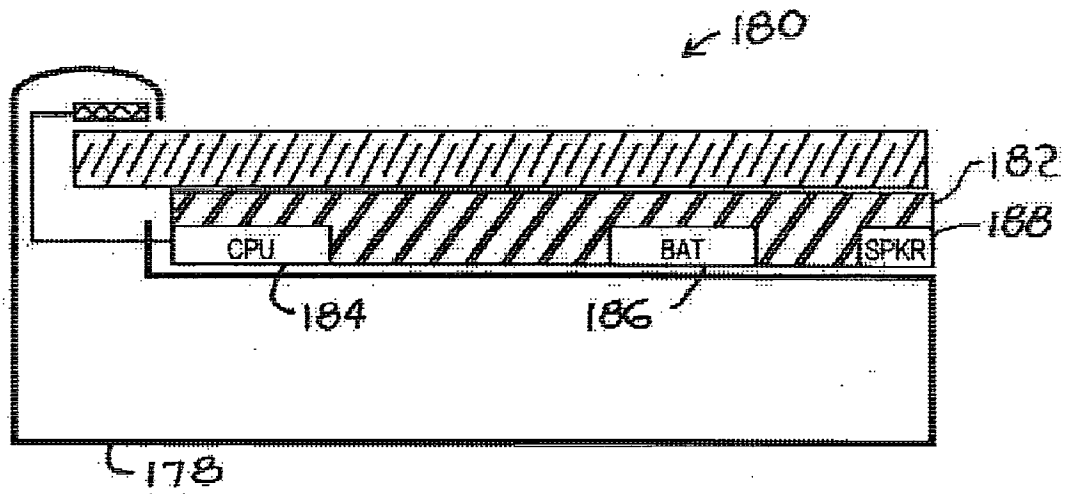


Fig. 22

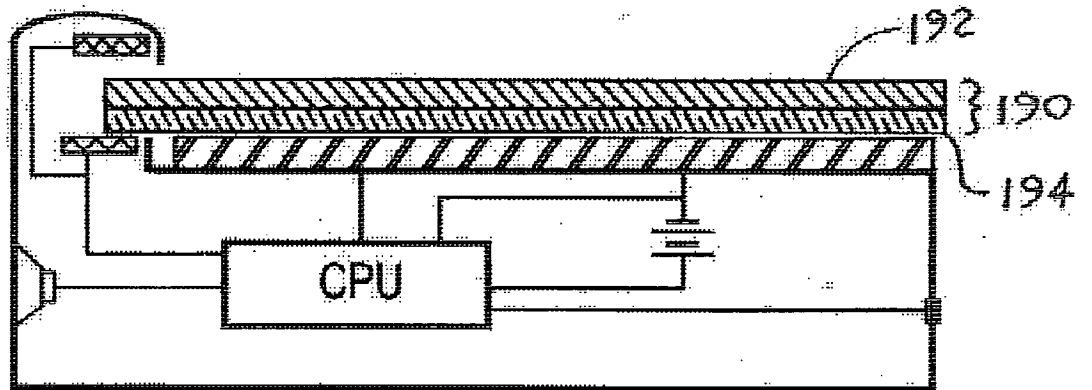


Fig. 23

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/000884

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A63F3/04 A63F13/06 A63F13/10
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/03188 A1 (SUPER DIMENSION INC [US]; GILBOA PINHAS [IL]) 8 February 1996 (1996-02-08) page 5, line 4 - line 10; figure 1 page 19, last paragraph; figure 11 page 11, paragraph 2 page 12, paragraph 2 page 16, paragraphs 1,2; figure 10 -----	1-20
X	US 5 190 285 A (LEVY ROBERT B [US] ET AL) 2 March 1993 (1993-03-02)	1,16
A	column 1, line 40 - column 2, line 20 figures 1, 2, 3, 5, 7 column 3, line 42 - line 61 ----- -/--	2-15, 17-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 11 August 2011	Date of mailing of the international search report 19/08/2011
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Mikulastik, Patrick
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/000884

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/248650 A1 (COLBERT SAVALAS O [US] ET AL) 9 December 2004 (2004-12-09) paragraphs [0002], [0010], [0029], [0034] figures 1-5	1-20
A	----- US 2009/264200 A1 (SCHWARTZ EREZ [IL]) 22 October 2009 (2009-10-22) paragraphs [0064], [0065], [0137], [0187], [0188], [0189], [0068], [0146], [0147], [0165]; figure 14 -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/000884

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